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Reference

Cooper Bussmann
BU-905U-L-R Receiver
Quick Start Guide
Version 1.9

About this Document

This document is the Cooper Bussmann BU-905U-L Wireless I/O Receiver Unit Quick Start Guide and contains the following sections:

<u>Section</u>	<u>Read this section if you want to ...</u>
Basic steps for using your unit	Learn the basic steps for installing and using your unit.
Factory default configuration	Understand how the transmitter sends information to the receiver.
Unit components	Understand the different parts of your unit.
Antenna installation	Learn how to install an antenna with your unit.
Resetting factory defaults	Reset your unit to the original factory default settings.
Linking transmitter and receiver units	Link your units to work as a dedicated pair.
Safety information	Understand important safety information related to your unit. NOTE: You must read this information before installing your unit.
Specifications	Know technical information about your unit.

For more information, see the next sections.

Basic Steps for Using Your Unit

This document describes how to configure your unit using the default factory configuration that lets you easily setup your network as a simple send/receive network using a dedicated pair of transmitter and receiver units.

The basic steps for using your unit are:

1. Connect the antenna power supply and transducer signals using the instructions in this document. Power supply and transducer connection is described in the section **Unit components and connections**. Antenna connection is described in the section **Antenna installation**. For more information, see the **BU-905U-L Installation Manual**.
2. Reset the transmitter and receiver units to the factory default configurations.
3. Link the transmitter and receiver units to work as a dedicated pair.
4. Bench test your configuration before deploying.

NOTE: You can also configure your network using a user-defined customized configuration that lets you set specific information about your network. For more information on setting a user-defined customized configuration, see the **BU-905U-L User Manual** on the enclosed CD.

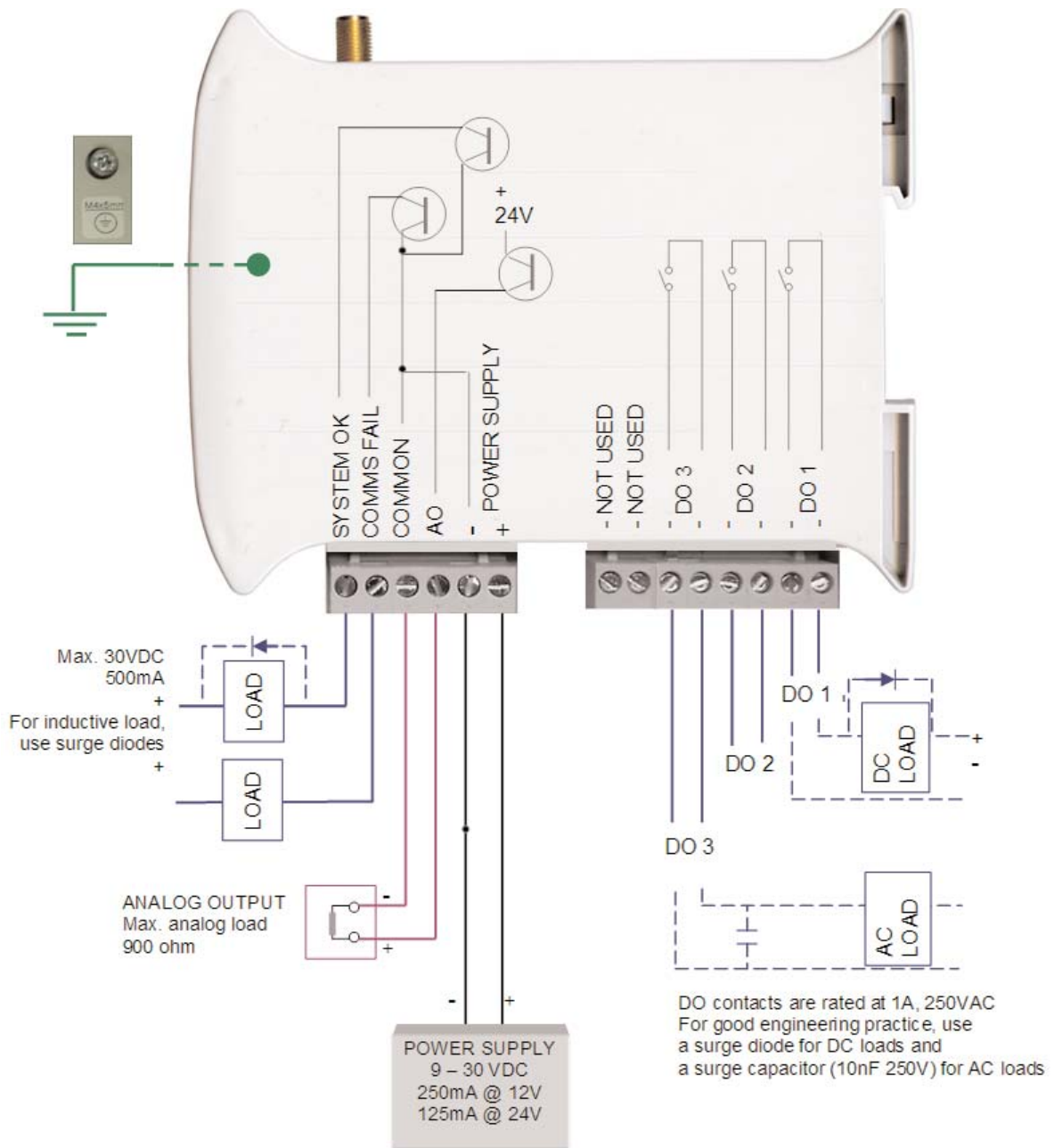
Factory Default Configuration

When you configure the units using the configuration in this document, the inputs from the transmitter are sent to the outputs at the receiver as follows:

<u>BU-905U-L-T (Transmitter)</u>	<u>Sends</u>	<u>BU-905U-L-R (Receiver)</u>
Digital Input 1	⇒	Digital Output 1
Digital Input 2	⇒	Digital Output 2
Analogue Setpoint	⇒	Digital Output 3
Analogue input (4-20 mA)	⇒	Analog output (4-20 mA)
Thermocouple Input (Not used) & Setpoint Output (Local indication)		Communication Failure (Comes on if no messages from BU-905U-L-T)
System OK (On if system OK)		System OK (On if system OK)

Unit Components and Connections

Your BU-905U-L-R receiver unit has the following components and terminal connections:

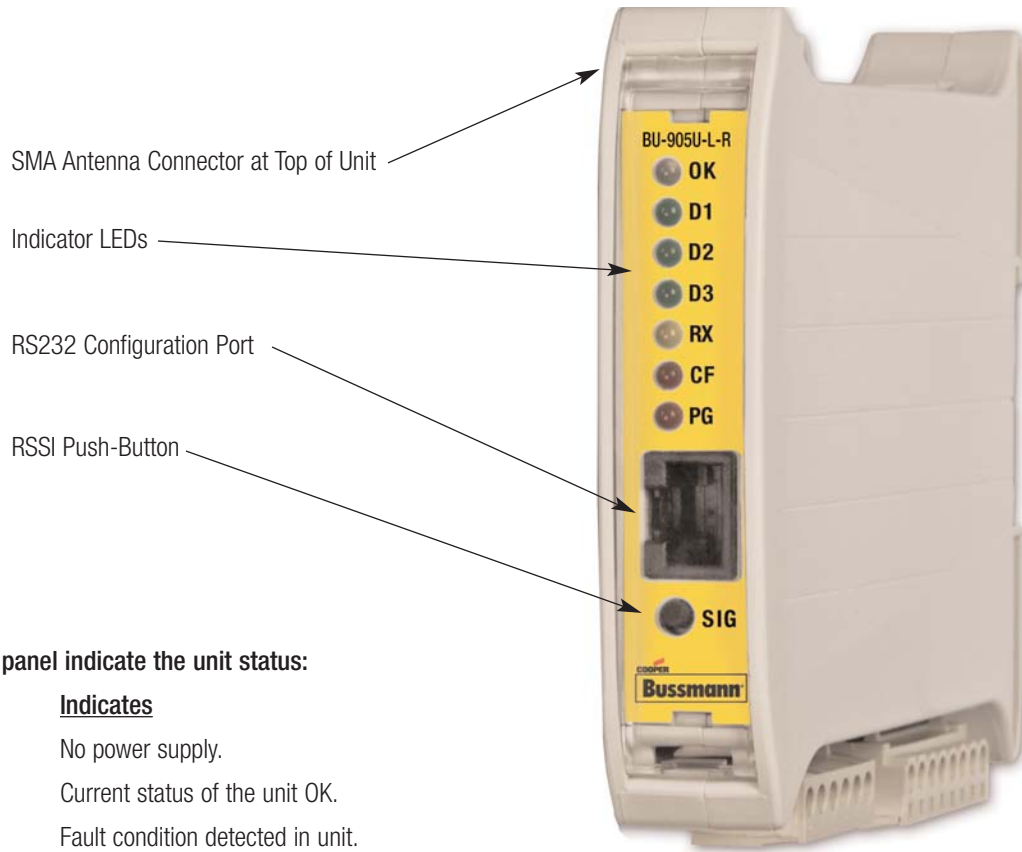


IMPORTANT ELECTRICAL SAFETY INFORMATION

In order to comply with Electrical Safety Regulations, this module must be installed in an Electrical AND Fire enclosure. This enclosure may be a single or multiple enclosures. Access to the module is to be made by a Service Person only.

In order to comply with Electrical Safety Standards, when connecting SELV **AND** voltages which are greater than SELV (30Vac or 60Vdc) together, then Relay Output 2 must **NOT** be used in order to provide sufficient isolation between the outputs

Front Panel Components



The LEDs on the front panel indicate the unit status:

LED Status

Indicates

None

No power supply.

OK LED Green

Current status of the unit OK.

OK LED Red

Fault condition detected in unit.

RX LED Flashes

Receiving Message.

CF LED ON

Module Communication Failure Output is active.

PG LED on

Configuration Cable Connected.

Output LED ON

The Output LEDs (i.e., D1, D2, D3) light when the corresponding output is active.

D1

Relay output D1 is ON (Contact Closed).

D2

Relay Output D2 is ON.

D3

Relay Output D3 is ON.

LEDs with RSSI Push Button Pressed

When you press the RSSI push button, the unit shows the signal strength by lighting the LEDs from the bottom to the top. Signal strength is the strength of the last message received that was addressed to this station.

LED

Signal Strength

LED

Signal Strength

D1

More than -85 dBm

RX

More than -100 dBm

D2

More than -90 dBm

CF

More than -105 dBm

D3

More than -95 dBm

PG

Always on during RSSI test

Output LED flashing quickly

If an output is in communication failure, the corresponding LED flashes at 5Hz.

D1

Relay Output D1 is in communication failure.

D2

Relay Output D2 is in communication failure.

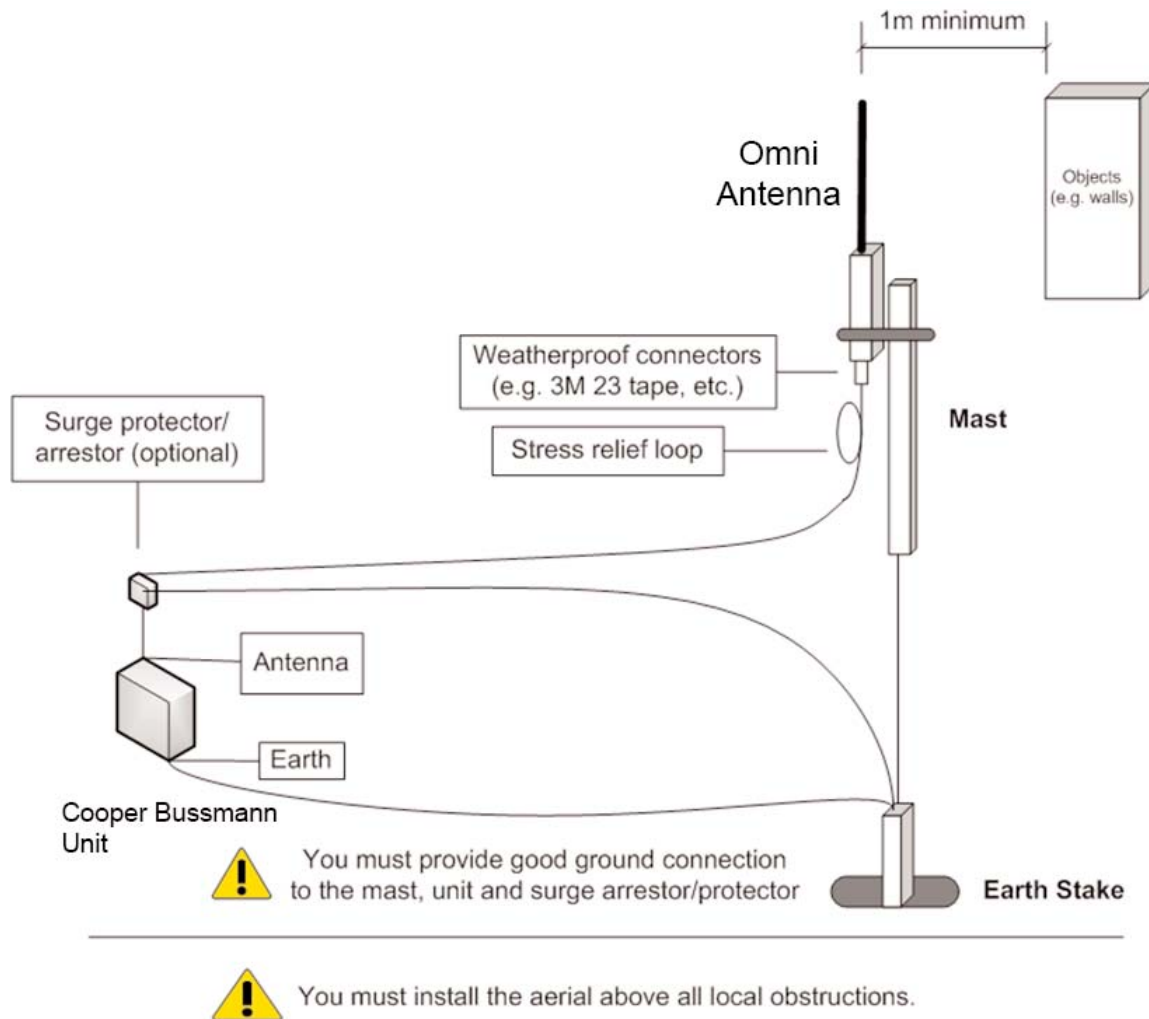
D3

Relay Output D3 is in communication failure.

PG

Analog output is in communications failure.

Antenna Installation



Resetting Your Unit to Factory Defaults

You must reset the receiver unit to factory defaults before linking the transmitter and receiver units.

To reset the default factory configuration:

1. Press and hold the RSSI push button.
 2. Power on the BU-905U-L-R receiver.
 3. The BU-905U-L-R receiver flashes all LEDs at medium flash (i.e., 1.6Hz).
- NOTE:** If the LEDs do not flash, you must repeat steps 1 and 2 until the LEDs flash before continuing.
4. Release the RSSI push button within 5 seconds.
 5. Within a further 60 seconds, press and hold the RSSI push button for 5 seconds (until the LEDs stop flashing) and then release.
 6. The BU-905U-L-R receiver lights all LEDs for 2 seconds before returning to normal operation.
- NOTE:** If the LEDs do not light, you must repeat the process from step 1 until the LEDs light before continuing.
7. You can now link the transmitter and receiver units.

Linking Your Transmitter and Receiver Units

You must reset the transmitter unit to factory defaults (to disable encryption) before linking the transmitter and receiver units. For more information, see the **BU-905U-L-T Transmitter Quick Start Guide**.

NOTE: You must complete the linking process in 60 seconds.

To link the transmitter and receiver units:

1. Press and hold down the RSSI Pushbutton on the receiver.
2. Power on the receiver while holding down the RSSI Pushbutton
3. Release the RSSI Pushbutton as soon as the Receiver LEDS flash (within 5 seconds of powering the receiver).
4. The receiver will flash all LEDs for a maximum 60 seconds while it tries to link to the transmitter.
5. Power on the transmitter. The transmitter sends a special "Link" message to allow the receiver to recognize the transmitter.
6. When the units link, the receiver lights all LEDs for 2 seconds before returning to normal operation.

NOTE: If the receiver LEDs continue flashing within the 60 seconds, the units are not linked and you should retry the linking process by powering the transmitter off and on again. If you exceed the 60 seconds, you must restart the linking process from step 1.

7. You can now bench test your configuration before deploying.

Safety information

Thank you for selecting the BU-905U-L-R receiver for your telemetry needs. We trust it will give you many years of valuable service. To ensure your BU-905U-L-R receiver enjoys a long life, double-check ALL your connections with the user's manual before powering on the unit.

WARNING: Incorrect termination of supply wires may cause internal damage and will void warranty.

Exposure to RF energy is an important safety consideration. The FCC has adopted a safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated equipment as a result of its actions in Docket 93-62 and OET Bulletin 65 Edition 97-01.

FCC Notice When Used in USA: BU-905U-L Wireless I/O Module

<u>Part</u>	<u>Additional information</u>
15	This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part15 of the FCC rules (Code of Federal Regulations 47CFR Part 15). Operation is subject to the condition that this device does not cause harmful interference.
90	This device has been type accepted for operation by the FCC in accordance with Part90 of the FCC rules (47CFR Part 90). See the label on the unit for the specific FCC ID and any other certification designations.

Industry Canada: BU-905U-L Wireless I/O Module

RSS-119 - This device has been type accepted for operation by Industry Canada in accordance with RSS-119 of the Industry Canada rules. See the label on the unit for the specific Industry Canada certification number and any other certification designations.

NOTE: Any changes or modifications not expressly approved by Cooper Bussmann P/L could void the user's authority to operate this equipment.

To operate this equipment legally the user must obtain a radio-operating license from the government agency. This is done so the government can coordinate radio users in order to minimize interference.

Safety Information - FCC Notice

This device complies with Part 15.247 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference; and
- This device must accept any interference received, including interference that may cause undesired operation

NOTE: This equipment is suitable for use in Class 1 Division 2 groups A, B and C or non-hazardous locations only.

UL Notice:

1. The Wireless I/O module is to be installed by trained personnel / licensed electricians only and installation must be carried out in accordance with the instructions listed in the Installation Guide and applicable local regulatory codes.
2. The units are intended for Restricted Access Locations.
3. The Wireless I/O module is intended to be installed in a final enclosure, rated IP54, before use outdoors.
4. The Equipment shall be powered using an external Listed Power Supply with LPS outputs or a Class 2 Power Supply.
5. The Wireless I/O module must be properly grounded for surge protection before use.

Unit Specifications

<u>Input/Output</u>	<u>Number</u>	<u>Additional Information</u>
Digital Outputs	3	Voltage-free contacts rated at 250Vac 1A, 30Vdc 1A. 2 for digital inputs and 1 for setpoint.
Status Outputs	2	Separate System OK and communication failure output.
Analog Output	1	16-bit resolution, 0.1% accuracy, single-ended source output.
Power Supply	1	9-30Vdc 0.25 Amp CSA certified Class 2 power supply. For use in Class I Div 2 hazardous locations, the power supply must be approved for Class I Div 2 use. WARNING: Explosion hazard - do not disconnect while circuit is live unless area is known to be non-hazardous.
Radio Receiver	1	High sensitivity FHSS UHF radio receiver.
Frequency	902 – 928MHz	Actual frequency range depends on country.
Sensitivity	-110 dBm	At BER 8%.

Document Information

Quick Start Guide Cooper Bussmann BU-905U-L Wireless I/O Receiver Unit Version 1.9

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Customer Assistance

Customer Satisfaction Team

Available to answer questions regarding Cooper Bussmann products & services Monday-Friday, 8:00 a.m. – 4:30 p.m. for all US time zones.

Contact:

- Toll-free phone: 855-287-7626 (855-BUSSMANN)
- Toll-free fax: 800-544-2570
- E-mail: busscustsat@cooperindustries.com

Emergency and After-Hours Orders

Next flight out or will call shipment for time-critical needs. Customers pay only standard product price, rush freight charges, & modest emergency service fee. Place these orders through the Customer Satisfaction Team during regular business hours. For after-hours, contact:

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- www.cooperc3.com
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Technical assistance is available to all customers. Staffed by degreed engineers, this application support is available Monday-Friday, 8:00 a.m. – 5:00 p.m. CT

Contact:

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- Live Chat: www.cooperbussmann.com

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- Product search & cross-reference
- Product & technical materials
- Solutions centers for information on topical issues including arc-flash, selective coordination & short-circuit current rating
- Technical tools, like our arc-flash calculator
- Where to purchase Cooper Bussmann product

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